

1 What is claimed is:

2
3 1. A control unit (1), for automotive applications in particular, with:

4
5 a frame (8) that includes a recess (9) across which electrical conductive tracks
6 (10) extend to supply electrical power;

7
8 a base plate (11) that is inserted in the frame (8);

9
10 a circuit carrier (12) on which electronic components are mounted and which is
11 installed on the base plate (11);

12
13 an electrical connection (14) for connecting the circuit carrier (12) with the
14 conductive tracks (10); and with

15
16 a cover (4) for hermetically sealing the control unit (1), the cover including a
17 shaped section that is insertable in the associated recess (9) in the frame (8);

18
19 wherein

20
21 a sealing gel (16) is provided in recess (9) with a viscosity such that the sealing
22 gel (16) can flow around the electrical conductive tracks (10) that extend across
23 the recess (9).

24
25 2. The control unit as recited in Claim 1,

26 wherein

27 the sealing gel (16) is designed as silicone gel, which remains elastic after a
28 possible hardening procedure.

29
30 3. The control unit as recited in Claim 1 or 2,

31 wherein

the shaped section (40) of the cover (4) includes at least one receiving area (43) for receiving sealing gel in a pressed-together state.

4. The control unit as recited in at least one of the preceding Claims, wherein the recess (9) of the frame (4) is configured as a circumferential groove (9), and the shaped section (40) of the cover (4) is configured as the spring (40) associated with the groove (9).

5. The control unit as recited in at least one of the preceding Claims, wherein the cover (4) is capable of being joined with the frame (8) using laser welding (17), a snap-in connection (41, 42), a shaped spring device (18) or the like.

6. The control unit as recited in at least one of the preceding Claims, wherein the base plate (11) is made of a material with good thermal conductivity, e.g., metal.

7. The control unit as recited in at least one of the preceding Claims, wherein the conductive tracks (10) are configured as pressed-screen tracks or as flexible-foil tracks.

8. A method for manufacturing a control unit (1) that is configured according to one of the Claims 1 through 7, comprising the following steps:

Press and/or bond a base plate (11) into a frame (8) that includes a recess (9) across which electrical conductive tracks (10) extend to supply electrical power;

1 Bond a circuit carrier (12) designed to retain electronic components (13) to the
2 base plate (11);

3
4 Establish contact between the circuit carrier (12) and the electrical conductive
5 tracks (10) using a bonding method, for example;

6
7 Pour a sealing gel (16) into the recess (9) provided in the frame (8), whereby the
8 sealing gel (16) has a viscosity such that it can flow around the conductive tracks
9 (10) that extend across the recess (9);

10
11 Insert a cover (4) configured with a shaped section (40) into the recess (9)—filled
12 with the sealing gel (16)—of the frame (8) to hermetically seal the control unit (1),
13 and

14
15 Apply a predetermined amount force to the cover (4) to create hydrostatic
16 pressure in the sealing gel (16).

17
18 9. The method as recited in Claim 8,
19 wherein
20 the base plate (11) is formed of metal and is mounted on a cooling surface (19),
21 the base plate being in contact with the cooling surface.

22
23 10. The method as recited in one of the Claims 8 or 9,
24 wherein
25 the control unit (1) is acted upon with a predetermined amount force using a
26 spring device (20).

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